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Obstructive Lung Diseases

TOPIC: Obstructive Lung Diseases

TYPE: Fellow Case Reports

ACUTE COPD EXACERBATION AFTER THE SECOND DOSE OF COVID-19 VACCINE

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INTRODUCTION: The pandemic from severe acute respiratory syndrome coronavirus 2 (COVID-19) has claimed and continues to claim countless lives around the world. Highly anticipated vaccines from multiple manufacturers have deemed safe and effective, and have been approved at the end of year 2020, in record short time, thanks to the valiant effort of the scientists. Time is still needed to assess full side effect profile of these vaccines. To the best of our knowledge, this is the first case of COVID-19 vaccine induced exacerbation of chronic obstructive pulmonary disease (COPD).

CASE PRESENTATION: Patient is 76 year old male with past medical history significant for lung adenocarcinoma stage IIB on chemotherapy, severe COPD, chronic hypoxic respiratory failure, low grade non hodgkin's lymphoma in remission, hypertension, gout, hear failure, that presents with fever 102F and shortness of breath. Patient was in his usual state of health, undergoing last chemotherapy 3 weeks ago which he tolerated well. A day prior the admission patient received his 2nd dose of mRNA-1273 (Moderna COVID-19 vaccine). Within the next 24h patient developed fever and shortness of breath which brought him to the emergency department. On admission patient with obvious respiratory wheezing, for which he was treated with systemic steroids. Infectious workup was negative, which included normal WBC without left shift. Contrast enhanced computed tomography (CT) of chest/abdomen/pelvis revealed known left lower lobe lesion which is decreased in size, without signs of pulmonary or abdominal infection. Echocardiogram was without signs of vegetation, with preserved ejection fraction. Patient was monitored off antibiotics. Fever and shortness of breath quickly improved with systemic steroids. Patient remained stable on his home dose of oxygen supplementation while inpatient, and was successfully discharged to home with prednisone taper.

DISCUSSION: COVID-19 vaccines have been proven to be very effective and safe in preventing serious COVID-19 infections and deaths. Serious side effects are very rare. For mRNA-1273 (Moderna COVID-19 vaccine), fever has been reported in 8% of patients in trials after the 1st dose (no data after the 2nd dose), while no data was available for worsening COPD symptoms. It is likely that these vaccines can produce transient systemic inflammation, which can lead to exacerbation of underlying conditions. In our case it has led to acute COPD exacerbation in patient with underlying oxygen dependent severe COPD.

CONCLUSIONS: The inflammatory response from receiving COVID-19 vaccine, can lead to acute exacerbation of COPD in certain high risk patients. Additional safety data is needed in post vaccine surveillance in this sub group of patients.

REFERENCE #1: Gee J, Marquez P, Su J, et al - First Month of COVID-19 Vaccine Safety Monitoring—United States, December 14, 2020–January 13, 2021

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